CLAIMS

1. A method for identifying one or more micro-organism and/or micro-organism species, and for measuring the portion of at least one micro-organism and/or micro-organism species from a sample, c h a r a c t e r - i s e d in that

a) binding to a structure individualising at least one micro-organism species or group and enabling identification a first fluorescent agent that absorbs light in a first wavelength area,
b) binding to a structure characteristic of all micro organisms a second fluorescent agent that absorbs light in a second wavelength area,
c) subjecting the sample to flow,
d) exciting the aforementioned first fluorescent agent in the aforementioned flow with a monochromatic light disposed in the first wavelength area,
e) exciting the aforementioned second fluorescent agent in the aforementioned flow with a monochromatic light disposed in the second wavelength area,
f) identifying the target micro-organism by analysing the fluorescence of the fluorescent agents bound to the particles of the sample,

and in that the fluorescent agents and the wavelength areas of the monochromatic light are chosen in such a manner that the difference in intensities of the mean fluorescences of the fluorescent agents is at least about double on a logarithmic scale.

2. The method according to claim 1, c h a r a c t e r - i s e d in that the method further comprises a step at which the portion(s) of the identified target micro-organism(s) is/are calculated from the total amount of sample.

3. The method according to claim 1 or 2, c h a r a c - t e r i s e d in that a measurable difference in intensities between the fluorescences of the fluorescent agents is achieved in the first wavelength area.

4. The method according to any one of claims 1-3, c h a r a c t e r i s e d in that the sample is introduced into a flow cytometer.

5. The method according to any one of claims 1-4, c h a r a c t e r i s e d in that a first fluorescent agent is attached to the probes that are bound to the structure individualising at least one micro-organism species or group in the sample and enabling the identification.

6. The method according to any one of claims 1-5, c h a r a c t e r i s e d in that a structure individualising one micro-organism species or group and enabling the identification is a ribosomal RNA molecule.

7. The method according to any one of claims 1-6, c h a r a c t e r i s e d in that a structure characteristic of all micro-organisms is DNA.

8. The method according to any one of claims 1-7, c h a r a c t e r i s e d in that a threshold value is set for each micro-organism for each parameter specifically, and the micro-organisms are classified based on their threshold values.

9. The method according to any of claims 1-8, c h a r - a c t e r i s e d in that the fluorescent agent is a fluorochrome.

10. The method according to any one of claims 1-9, characterised in that the micro-organism is a bacterium and/or a bacterial species.

11. The method according to claim 10, characterised in that the aforementioned ribosomal RNA molecules are chosen from a group consisting of 16S ribosomal RNA molecules and 23S ribosomal RNA molecules.

12. The method according to any one of claims 1-11, characterised in that the light scattering from the particles of the sample is detected.

13. The method according to any one of claims 1-12, characterised in that micro particles are further separated from the sample based on their scattering and/or fluorescence properties.

14. The method according to any one of claim 1-13, characterised in that the first wavelength area is 600-650 nm.

15. The method according to any one of claim 1-13, characterised in that the second wavelength area is 350-600 nm.

16. The method according to any one of claims 1-15, characterised in that the monochromatic lights disposed in the first and second wavelength area are formed by one light source.

17. The method according to any one of claims 1-15, characterised in that the monochromatic lights disposed in the aforementioned first and second wavelength area are formed by at least two light sources.

18. The method according to claim 17, c h a r a c t e r - i s e d in that at least two of the aforementioned at least two light sources are disposed at a distance from each other, and in that in the method, signal delay equipment is used to delay the measuring signals being created by means of the first and optionally the subsequent light sources.

19. The method according to any one of claims 1-18, c h a r a c t e r i s e d in that the sample is a sample from a mammal's organism fluid.

20. The method according to claim 19, c h a r a c t e r - i s e d in that the sample is a sample originating from a mammal's digestive system.

21. The method according to any one of claims 1-18, c h a r a c t e r i s e d in that the sample is a waste water sample.

22. A device for identifying one or more micro-organisms and/or micro-organism species and for measuring the portion of at least one micro-organism and/or micro-organism species from the sample, c h a r a c t e r - i s e d in that the device comprises:

a) a flow chamber (5), into which a solution being analysed (6) containing the sample is introduced, in which to a structure individualising at least one micro-organism species or group and enabling the identification, a first fluorescent agent is bound that absorbs light in a first wavelength area, and in which to a structure characteristic of all micro-organisms, a second fluorescent agent is bound that absorbs light in a second wavelength area,
b) a light source (1, 3) for producing a monochromatic light at different wavelengths,

c) one or more detectors (14, 15, 16, 17) for measuring the signal forming the fluorescent agent for identifying the target micro-organism,

and in which device the fluorescent agents of the sample and the wavelength areas of the monochromatic light are chosen in such a manner that the difference in intensities between the mean fluorescences of the fluorescent agents is at least double on a logarithmic scale.

23. The device according to claim 22, characterised in that the device further comprises calculation means for calculating the portion(s) of the identified micro-organism(s) from the total amount of sample.

24. The device according to claim 22 or 23, characterised in that a measurable difference in intensities between the fluorescences of the fluorescent agents is achieved in the first wavelength area.

25. The device according to any one of claims 22-24, characterised in that the device is a flow cytometer.

26. The device according to any one of claims 22-25, characterised in that the detector (14, 15, 16, 17) is used to detect the light scattering from the particles in the sample.

27. The device according to any one of claims 22-26, characterised in that the device further comprises a feeding device for dosing a standard amount of sample.

28. The device according to any one of claims 22-27, characterised in that the light source (1, 3) includes at least two light sources for producing the

aforementioned monochromatic lights disposed in the first and second wavelength area.

29. The device according to claim 28, c h a r a c t e r - i s e d in that at least two of the aforementioned at least two light sources are disposed at a distance from each other, and in that the device further comprises signal delay equipment for delaying the measuring signals being created by means of the first and optionally the subsequent light sources.

30. The device according to any one of claims 22-29, c h a r a c t e r i s e d in that the aforementioned light source(s) (1, 3) is/are chosen from a group consisting of a diode laser of 635 nm and an argon ion laser of 488 nm.

31. The use of a method according to any one of claims 1-21 for identifying micro-organisms and for measuring their portions.

32. The use according to claim 31, c h a r a c t e r - i s e d in that the micro-organism is a probiotic bacterial strain.

33. The use of a device according to any one of claims 22-30 for identifying micro-organisms and for measuring their portions.

34. The use according to claim 33, c h a r a c t e r - i s e d in that the micro-organism is a probiotic bacterial strain.